REMARKS:

Claims 1-18 are currently being examined, of which claim 1 has been amended and claims 9-18 have been newly added. It is respectfully believed that no new matter has been introduced.

The amendments of claim 1 are supported by recitations on page 11, lines 2 to 17, on page 11, line 21, to page 12, line 10, and the like of the present specification. The claim 9 is supported by the recitation on page 13, lines 6 to 8, of the present specification. The claims 10 and 11 are supported by the recitation on page 11, lines 7 to 9, of the present specification.

The claim 12 is supported by the recitation on page 17, lines 17 to 19, of the present specification. The claim 13 is supported by the recitation on page 12, lines 10 and 11, of the present specification.

The claims 14 and 15 are supported by the recitation on pages 11, line 21, to page 12, line 12 of the present specification. The claims 16 and 17 are supported by the recitation on page 17, lines 14 to 17, of the present specification. The claim 18 is supported by the recitation on page 21, lines 3 and 4, of the present specification.

Claims 1, 2, and 4-6 stand rejected under 35 USC 103(a) as obvious over USP 6,277,529 (**Marumoto**) in view of USP 6,048,924 (**Obayashi**).

Applicant respectfully traverses this rejection of claims 1, 2, and 4-6.

The claim 1 of the present invention is amended to include "pigment" instead of "coloring material", and also to include the organic solvent.

The claim 9 claims that the amount of the pigment (b) in the colored composition is within a range of 10 to 70% by weight based on the non-volatile content in the colored composition. The claim 12 claims that the amount of the solvent (c) is within a range of 1 to 19 parts by weight based on 1 part by weight of the non-volatile content in the colored composition. The invention(s) recited in claims 9 and 12 correspond to preferred embodiment(s) of the present invention.

When a dye is used as a coloring material, a color filter comprising the dye is inferior in heat resistance and solvent resistance. On the other hand, when a pigment is used as a coloring material, a color filter comprising the pigment is superior in heat resistance, light resistance, and solvent resistance.

However, although the dye can dissolve in solvent, resin or the like, the pigment cannot dissolve in solvent, resin or the like and disperses therein. Accordingly, unlike the dye, the state of dispersion of the pigment tends to change from uniform to nonuniform over time, and therefore problems such as precipitation of pigment tend to arise. In order to avoid these problems, techniques wherein a pigment dispersing agent is added to a dispersion to maintain a good dispersing state of the pigment are generally utilized. However, these techniques are insufficient for many cases which use a pigment.

The inventor of the present invention found after research that when an amino resin having specific group(s), which is a carboxyl group and/or a phenolic hydroxyl group, is used in combination with a pigment, excellent colored compositions can be obtained since dispersibility of the pigment comprised in the colored composition is maintained without causing nonuniformity of the pigment over time.

As is apparent from the comparison of Example 7 and Comparative Example 2 of the present specification, there are differences between the colored composition of Example 7 and Comparative Example 2, regarding dispersibility of the pigment comprised in the colored composition and ejecting property by ink-jet printing. The differences are due to whether or not there is a carboxyl group and/or a phenolic hydroxyl group in the amino resin.

In the Example 7 wherein an amino resin having a carboxyl group is used, good storage stability of a colored composition comprising the amino resin (dispersibility of the pigment) is achieved and good ejecting property, which was determined as a property when the colored composition (ink) was ejected from a piezo ink-jet print head, is also achieved. In the Comparative Example 2 wherein melamine resin, which is an amino resin having no carboxyl group, is used, dispersibility of the pigment of the colored composition is poor and the ejecting property is also poor.

Accordingly, it is very clear that excellent ejecting property of the colored composition when it is printed by ink-jet printing, and excellent storage stability of the colored composition, are achieved by the present invention, wherein the amino resin (a) having a carboxyl group and/or a phenolic hydroxyl group is used. Furthermore, excellent heat resistance, solvent resistance, and light resistance are ensured by use of the pigment, in accordance with the principles of the present invention.

The excellent effects by the amino resin (a) having a carboxyl group and/or a phenolic hydroxyl group, wherein good dispersibility of the pigment comprised in a colored composition and good ejecting property are achieved, are not described at all in **Obayashi** and **Marumoto** , alone or in combination. Therefore, it would have been very difficult or impossible for a person of ordinary skill in the art to have conceived of the present invention as set forth in claim 1, as amended, from

the disclosures of **Obayashi** and **Marumoto**. A person of ordinary skill in the art, at the time the present invention was made, would not have arrived at the present invention from the teachings of **Obayashi** and **Marumoto**.

Obayashi discloses an invention of an aqueous paint, which may be seen from the title. Water is used as a solvent which is a main component in the paint.

In contrast, water is not used in the colored composition of the present invention. That is, the colored composition of the present invention does not need water therein. Since the colored composition of the present invention can comprise organic solvent as the only solvent, the composition is quite different from the aqueous paint of **Obayashi**. Therefore, it would be very difficult or impossible to achieve the organic solvent based colored composition of the present invention, wherein water is not used, from the invention of **Obayashi** using the aqueous paint.

Furthermore, there is the possibility that, when the aqueous paint of **Obayashi** is used for producing a color filter, wettability of the paint on a transparent substrate (affinity of the paint to a surface of the transparent substrate) becomes insufficient, and as a result, fine and uniform pixels of a color filter cannot be obtained therefrom and/or problems arise such that adhesiveness of the paint to the substrate such as a glass substrate is poor.

On the other hand, the present invention yields excellent effects. The organic solvent based colored composition of the present invention can achieve sufficient wettability on the transparent substrate, and fine and uniform pixels of a color filter can be obtained, and good adhesiveness to the substrate can be achieved by the present invention.

Furthermore, the amino resin described in **Obayashi** is used as a binder or an additive for coatings, processed paper goods, processed fiber goods, adhesives, inks, and other coatings (please refer to column 1, lines 12 to 16, of **Obayashi**).

In **Obayashi**, there is neither description regarding the use of the amino resin in ink jet printing nor description regarding the production of a color filter using the amino resin. A person skilled in the art may have conceived of use of the amino resin in wrapping material for food and the like, since water resistance, retort resistance and the like are disclosed in the Examples of **Obayashi**. However, it would have been very difficult or impossible for a person of ordinary skill in the art, at the time the present invention was made, to have conceived of use of the amino resin of **Obayashi** in the field of production of color filters using an ink jet recording method.

The **Marumoto** reference discloses a production method for a color filter. It may be argued that the "second method" described in **Marumoto**, wherein ink itself is cured to form a colored

portion, is partially similar to but not the same as the method of the present invention. Regarding the second method disclosed in **Marumoto**, there is a description that polymer containing hydroxyl group or carboxyl group may be used as a resin for forming an ink (see the description in column 7, lines 40 to 42, of **Marumoto**). However, it would have been very difficult or impossible for a person of ordinary skill in the art, at the time the present invention was made, to have conceived, from the use of the polymer containing hydroxyl group or carboxyl group of the reference **Marumoto**, the use of the amino resin (a) having a carboxyl group and/or a phenolic hydroxyl group of the present invention.

Furthermore, **Marumoto** discloses that "from the viewpoint of an ink jetting performance of the ink jetting method, solvent mixed with water or water soluble organic solution may be used preferably" (see the description in column 7, lines 47 to 50 of **Marumoto**). From the description, it can be presumed that **Marumoto** requires the use of the aqueous ink. Accordingly, it would be very difficult or impossible for a person or ordinary skill in the art, at the time the invention was made, to have conceived, from the disclosure of **Marumoto**, a new invention wherein the organic solvent based colored composition (ink) as disclosed in the present invention, which is not an aqueous ink, is used in a color filter producing method wherein an ink jet recording is utilized.

In view of the foregoing, a person of ordinary skill in the art, at the time the present invention was made, would not have conceived the following, among other matters:

(i) using the amino resin (a) having a carboxyl group and/or a phenolic hydroxyl group as disclosed in the present invention for improving the dispersibility of pigment;

(ii) selecting an aqueous paint of **Obayashi** from among numerous paints, although there is no description at all regarding production of a color filter in **Obayashi**;

(iii) changing the solvent included in the aforementioned aqueous paint from water to an organic solvent; and

(iv) using the paint, wherein the organic solvent is comprised instead of water, in a production method as an ink of a color filter which uses an ink jet printing method.

Furthermore, there is no description at all in **Marumoto** regarding the amino resin (a) having a carboxyl group and/or a phenolic hydroxyl group as disclosed in the present invention, and **Marumoto** requires use of an aqueous paint as an ink. Accordingly, a person of ordinary skill in the art, at the time of the present invention was made, would not have conceived applications wherein an amino resin of **Obayashi** is applied to a resin comprised in an organic solvent based colored composition, and the colored composition comprising the resin of **Obayashi** is applied to the production method for a color filter using inkjet printing of **Marumoto**.

In view of the foregoing, **Marumoto** and **Obayashi**, alone or in combination, do not describe, teach, or suggest the following features set forth in claim 1, as amended: "A method of producing a color filter, comprising: forming pixels on a transparent substrate using a colored composition containing (a) an amino resin having a carboxyl group and/or a phenolic hydroxyl group, (b) a pigment, and (c) an organic solvent by an ink-jet printing method; and curing the pixels."

Thus, Applicant respectfully submits that this rejection of claim 1, 2, and 4-6 should be withdrawn.

Claims 3 and 7 stand rejected under 35 USC 103(a) as being obvious over **Marumoto** in view of **Obayashi** and USP 5,055,113 (**Larson**). Claim 8 stands rejected under 35 USC 103(a) as being obvious over **Marumoto** in view of **Obayashi** and USP 5,552,192 (**Kashiwazaki**), further in view of either USP 5,821,277 (**Hirayama**) or USP 5,821,016 (**Satoh**).

Applicant respectfully traverses these rejections of claims 3, 7, and 8.

Larson describes abrasive product having binder comprising an aminoplast resin. **Kashiwazaki** describes color filter and method for manufacturing, **Hirayama** describes

thermosetting and procuring compositions for color filters and method for making the same, and **Satoh** describes colored image forming material and color filter obtained therefrom.

Larson, **Kashiwazaki**, **Hirayama**, and **Satoh** fail to remedy the above-discussed deficiencies of **Obayashi** and **Marumoto**, regarding claim 1, as amended.

In view of the foregoing, **Marumoto, Obayashi, Kashiwazaki, Hirayama,** and **Satoh,** alone or in combination, fail to describe, teach, or suggest, as amended: the following features set forth in claim 1 "A method of producing a color filter, comprising: forming pixels on a transparent substrate using a colored composition containing (a) an amino resin having a carboxyl group and/or a phenolic hydroxyl group, (b) a pigment, and (c) an organic solvent by an ink-jet printing method; and curing the pixels."

Thus, Applicant respectfully submits that the rejections of claims 3, 7, and 8 should be withdrawn.

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP

Darren R. Crew

Darren R. Crew
Attorney for Applicant
Reg. No. 37,806

DRC/llf
Atty. Docket No. **011275**
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930

23850
PATENT TRADEMARK OFFICE